

May 2023 Monthly Weather Report

This document provides a summary of the UK's weather and climate statistics for May 2023.

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UK overview

The very start of May was quite settled and fine, but the weather soon turned much more unsettled from the south-west, with widespread falls of rain between the 4th and the 11th. Heavy thunderstorms and locally torrential rain caused flooding in many southern and eastern areas of England on the 9th. Towards mid-month things settled down, with high pressure building, and from the 12th onwards any falls of rain were mostly localised and light. This period was also a rather sunny period for many areas, in contrast to much of the rest of this spring, with the fine and settled weather lasting for the rest of the month, though at times a lot of cloud covered eastern coastal areas.

Temperatures were above average for the majority of the time, though nowhere reached 24 °C until May 27th. The provisional UK mean temperature for the month was 11.6 °C, which is 1.0 °C above average. Rainfall was above average in a band from Devon to Norfolk, whereas much of Wales, Scotland and north-west England had well below half the average, and for the UK overall rainfall was 55% of average. Sunshine was slightly below average for some northern and eastern areas, but above average for Wales and western/central parts of England, giving 108% of average for the UK overall.

Reference climatology used for calculating anomalies is the period 1991-2020 unless otherwise stated.

Weather impacts

- **Heavy rain, thunderstorms and flooding between the 5th and the 11th.**
- **Fine and settled from the 12th to the end of the month.**

May was mostly dominated by settled, anticyclonic conditions which yielded a much drier and rather warmer than average month as a whole. Most of the month's rainfall came between the 5th and the 12th, with several days of scattered locally intense thundery downpours, especially across a belt stretching from the south-west through central southern and into eastern England.

The only severe weather warnings issued this month were for thunderstorms between the 7th and the 11th. However, on the 5th surface water flooding affected parts of Lincolnshire after some locally intense downpours, particularly around RAF Waddington where hail also accumulated for a time. The Louth area was also impacted by localised surface water flooding, with Environment Agency teams reporting a couple of properties having been affected.

The 9th saw widespread heavy showers and thunderstorms develop across particularly south-west and central southern England, later spreading to parts of Wales, the Midlands and eventually London and eastern England. Impacts were reported quite widely across the south-west, with surface water flooding in various locations in south and east Devon, notably at Newton Poppleford on the A3052 but also in Tipton St. John, Fluxton, Metcombe and Sidmouth. In Somerset the village of North Cadbury was flooded at both ends, with the village hall taking in evacuated residents as multiple properties succumbed to surface water flooding. When the downpours moved further east an ensuing landslip blocked the Basingstoke to Winchester rail line. Later that day a section of the M11 in Essex was partially closed due to surface water.

Further intense downpours developed on the 11th, this time focussed further east with surface water flooding reported on roads in Harpenden, Stevenage, Hatfield and Welwyn Garden City in Hertfordshire. Further north thundery downpours caused surface water flooding in the village of Cropwell Butler, Nottinghamshire, with multiple properties impacted by excess surface water.

As the month progressed the weather became more settled and the ground quickly dried out, so the emphasis shifted to wildfire outbreaks with several fires reported across Wales over the weekend of the 21st/22nd. Further outbreaks over the last week of the month were seen as far apart as Dartmoor and Marsden Moor in West Yorkshire.

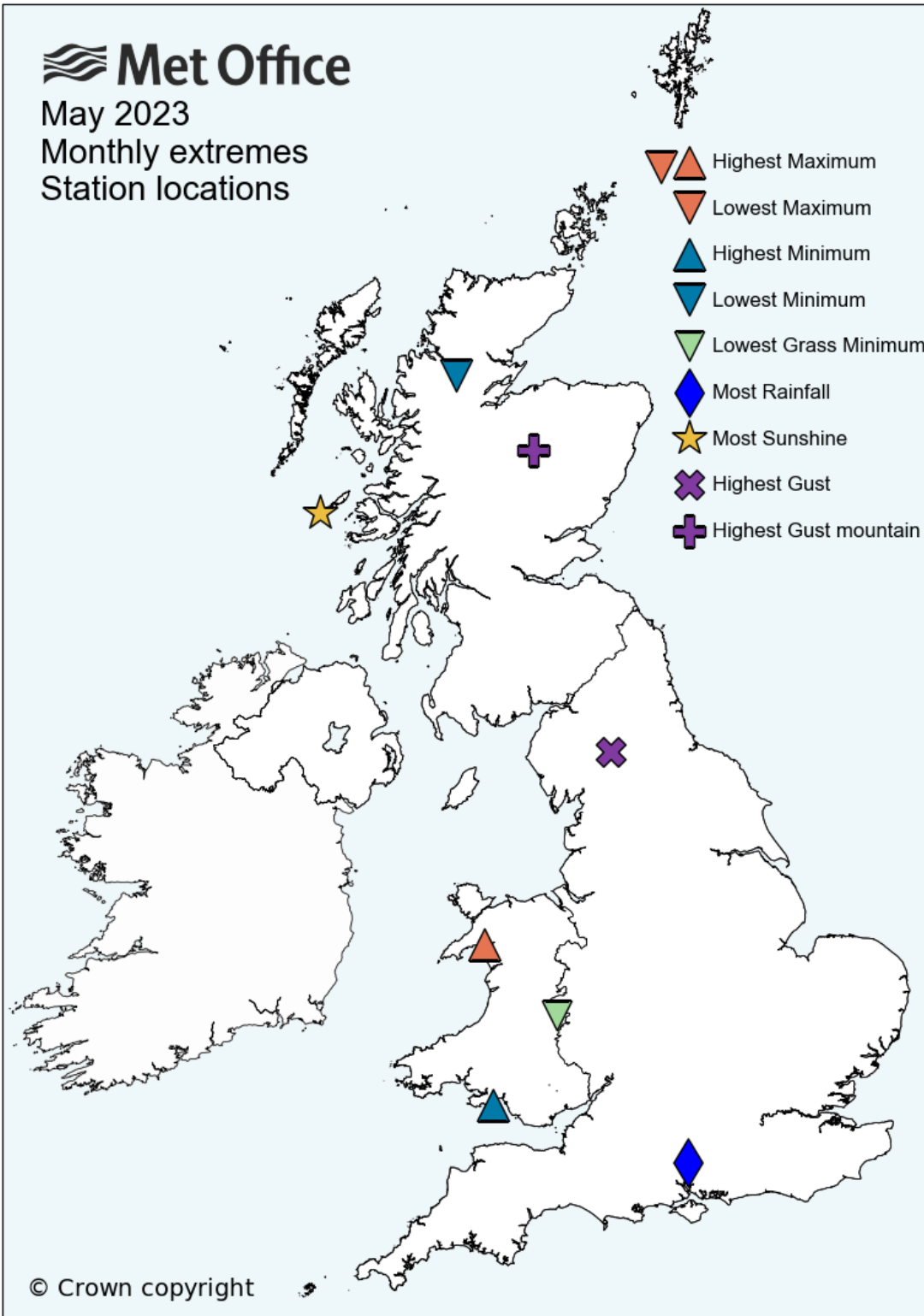
Monthly extremes

The table below lists UK monthly weather extremes recorded at individual weather stations during May 2023 from data available on 05/06/2023. The map shows the location of these stations.

Highest Maximum	25.1°C on 30th at Porthmadog (Gwynedd, 7mAMSL)
Lowest Maximum	6.4°C on 1st at Fair Isle (Shetland, 57mAMSL)
Highest Minimum	14.0°C on 28th at Mumbles Head (West Glamorgan, 44mAMSL)
Lowest Minimum	-2.2°C on 2nd at Loch Glascarnoch (Ross & Cromarty, 269mAMSL)
Lowest Grass Minimum	-6.0°C on 16th at Llangunllo, Cefn-suran (Powys (south), 310mAMSL)
Most Rainfall	43.6mm on 9th at Harestock S Wks (Hampshire, 51mAMSL)
Most Sunshine	16.2hr on 30th at Tiree (Argyll (in Strathclyde Region), 9mAMSL)
Highest Gust	54Kt 62mph on 4th at Warcop Range (Cumbria, 227mAMSL)
Highest Gust (mountain*)	61Kt 70mph on 8th at Cairngorm Summit (Inverness-shire, 1237mAMSL)
Greatest Snow Depth at 0900 UTC	No non-zero values.

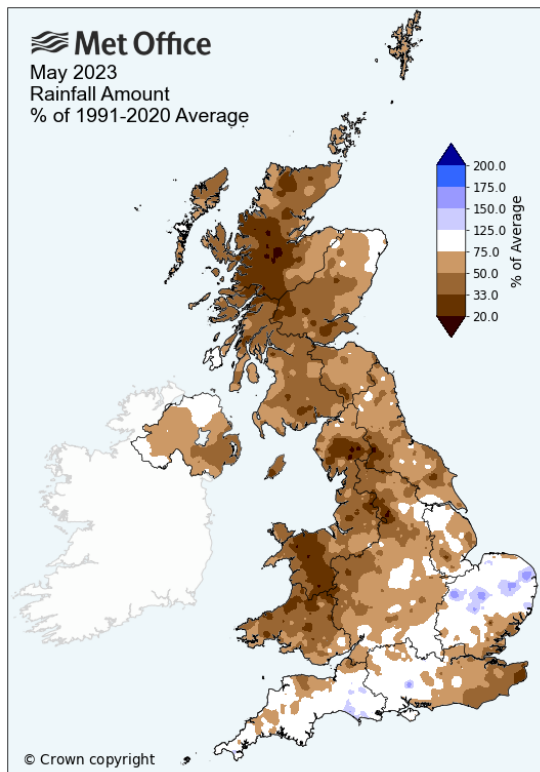
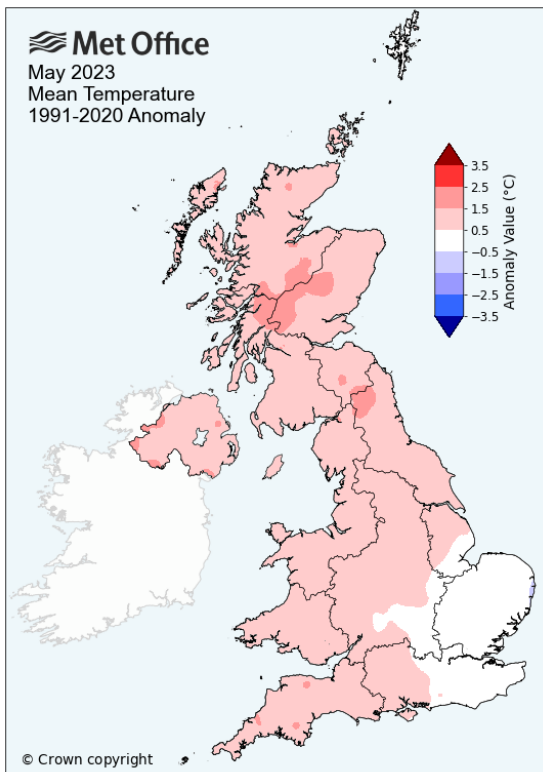
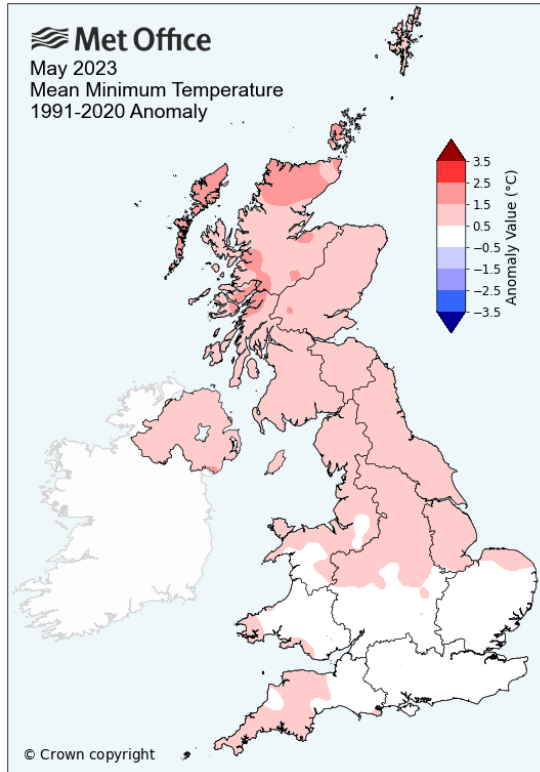
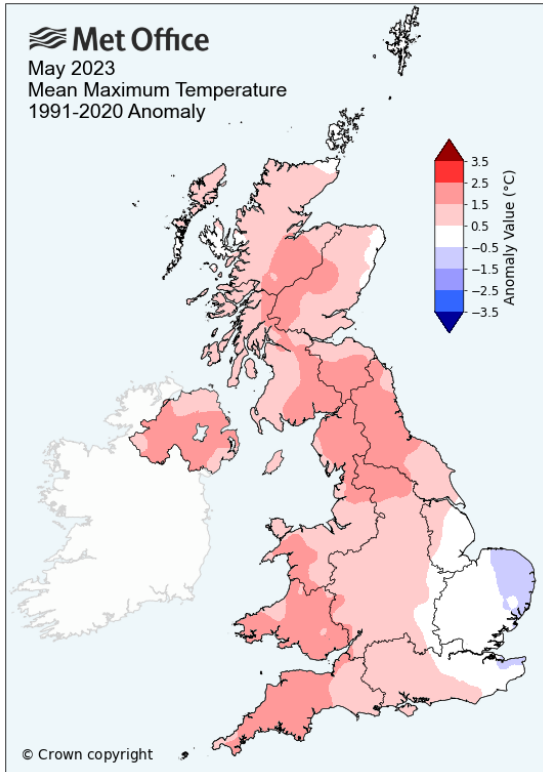
mAMSL refers to station elevation in metres above mean sea level.

*Mountain stations are above 500mAMSL.

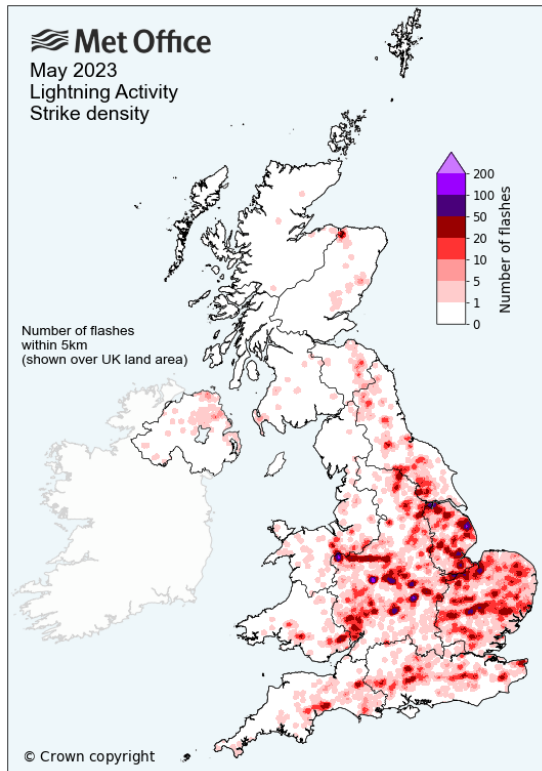
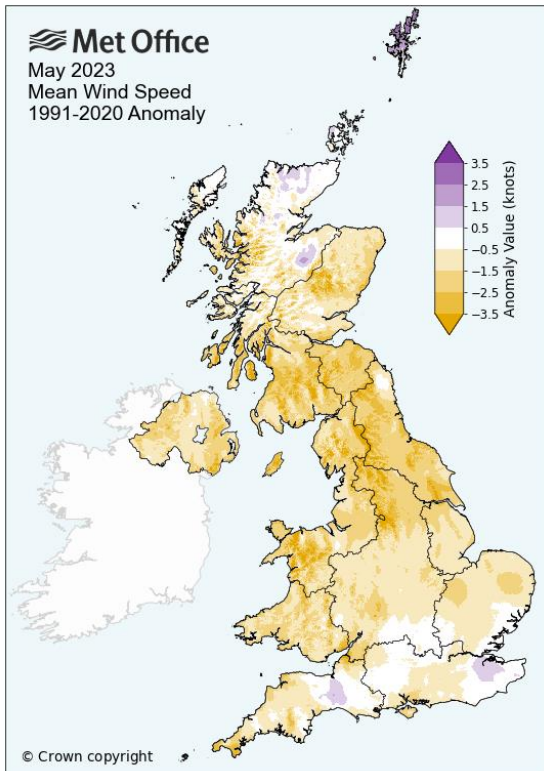
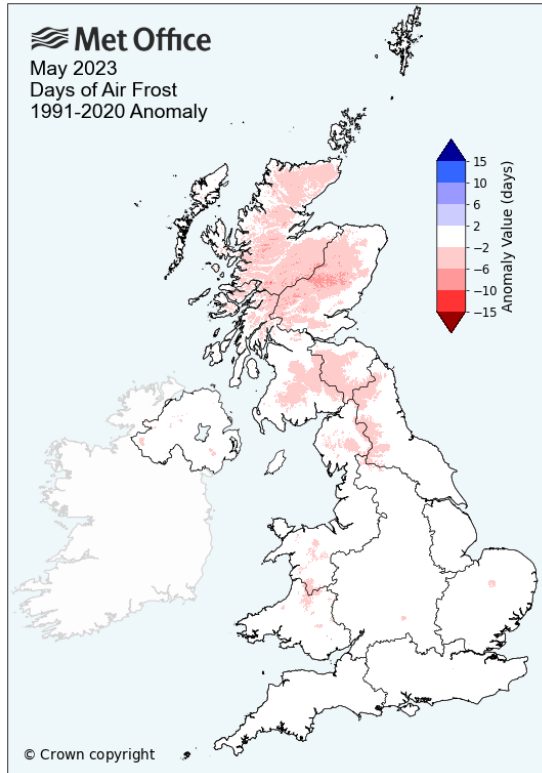
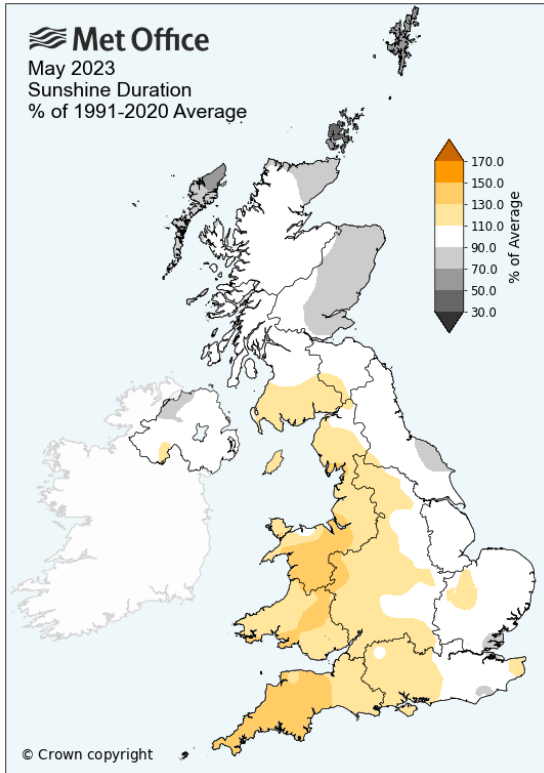


Monthly maps

These maps show monthly average daily maximum, monthly average daily minimum and monthly mean temperature and monthly rainfall for May 2023 as anomalies relative to the May 1991-2020 long term average.



These maps show monthly sunshine, monthly air frost and monthly windspeed for May 2023 as anomalies relative to the May 1991-2020 long term average, plus a map showing lightning activity as the number of strikes within a 5km radius of any land location.



Monthly climate statistics - actuals and anomalies

These tables show the UK and national climate statistics for May 2023 for max, min and mean temperature, rainfall, sunshine and windspeed as actual values and anomalies relative to the May 1991-2020 long term average. The position of the value within the full series (in both ascending and descending order) is shown in the two 'Rank' columns. Central England Temperature (CET) and England & Wales Precipitation (EWP) are also included.

Mean maximum temperature

Region	Maxtemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	16.2	1.1	15	126	140
England	17.1	0.9	21	120	140
Wales	16.8	1.6	12	129	140
Scotland	14.6	1.2	15	126	140
Northern Ireland	16.4	1.6	7	134	140
Central England	17.3	0.8	26	121	146

Mean minimum temperature

Region	Mintemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	7.0	0.8	11	130	140
England	7.5	0.5	14	127	140
Wales	7.0	0.4	22	119	140
Scotland	6.2	1.2	4	137	140
Northern Ireland	7.2	1.0	9	132	140
Central England	7.7	0.3	30	117	146

Mean temperature

Region	Meantemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	11.6	1.0	7	134	140
England	12.3	0.7	14	127	140
Wales	11.9	1.0	8	133	140
Scotland	10.3	1.2	6	135	140
Northern Ireland	11.9	1.4	4	137	140
Central England	12.5	0.6	51	315	365

Rainfall

Region	Rainfall (mm)	% of 1991-2020 Average	Rank - wettest	Rank - driest	Series length (yrs)
UK	39.1	55	163	26	188
England	38.7	68	144	45	188
Wales	34.6	40	170	19	188
Scotland	39.3	44	170	19	188
Northern Ireland	49.3	67	132	57	188
EWP (England and Wales)	43.5	69	201	58	258

Sunshine

Region	Sunshine (hours)	% of 1991-2020 Average	Rank - sunniest	Rank - dullest	Series length (yrs)
UK	207.2	108	28	87	114
England	224.8	113	15	100	114
Wales	245.1	128	4	111	114
Scotland	172.6	95	53	62	114
Northern Ireland	176.6	96	54	61	114

Windspeed

Region	Windspeed (knots)	1991-2020 Anomaly (knots)	Rank - windiest	Rank - calmest	Series length (yrs)
UK	7.4	-1.3	50	6	55
England	6.8	-1.3	52	4	55
Wales	7.2	-1.8	49	7	55
Scotland	8.7	-1.2	45	11	55
Northern Ireland	6.7	-1.5	52	4	55

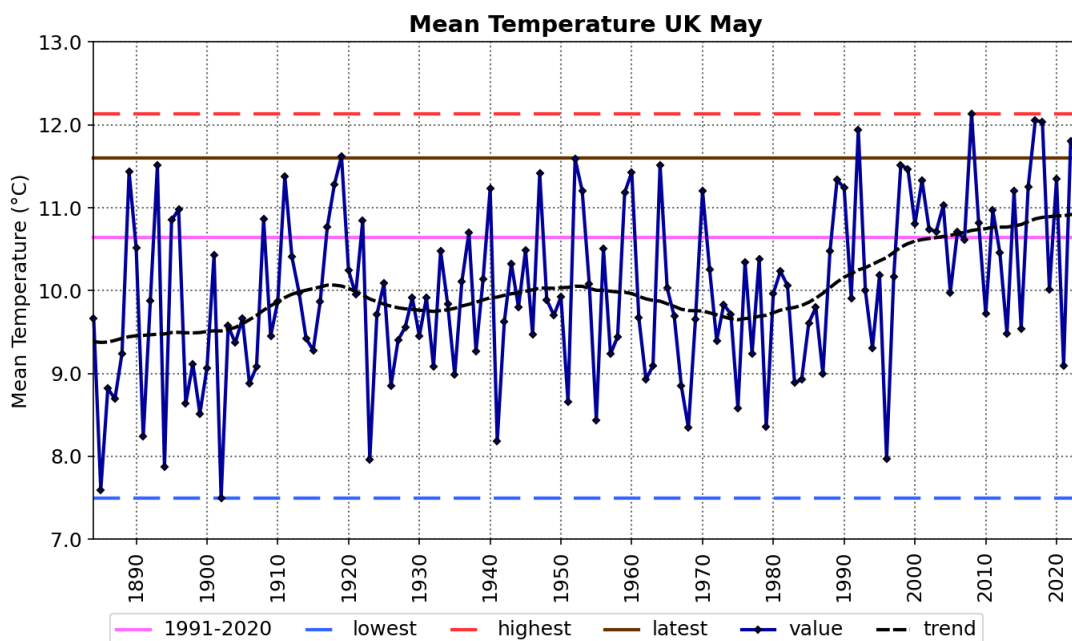
Monthly time-series

These charts show time-series for the UK for May for monthly mean temperature (from 1884), monthly rainfall (from 1836) and monthly sunshine (from 1919). The brown line shows the latest (2023) value. The hatched black line is a smoothing filter which shows the long-term trend. The tables below show statistics for the latest year, latest 10 years 2014-2023, the most recent 30-year climate reference period 1991-2020 and the 30-year baseline climate reference period 1961-1990.

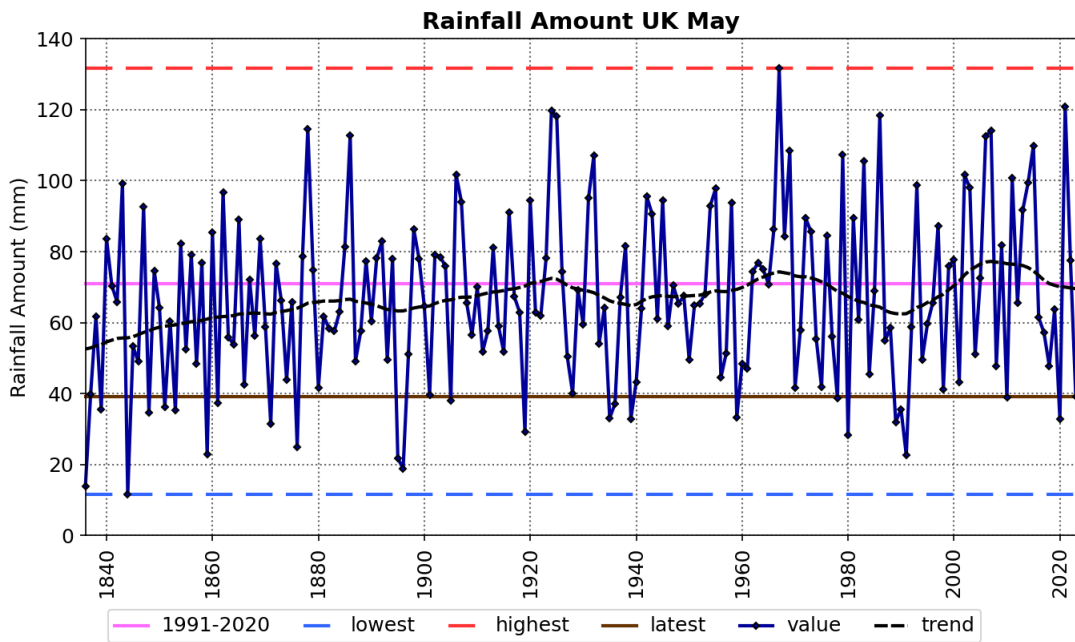


Source: HadUK-Grid 01/06/2023 14:51

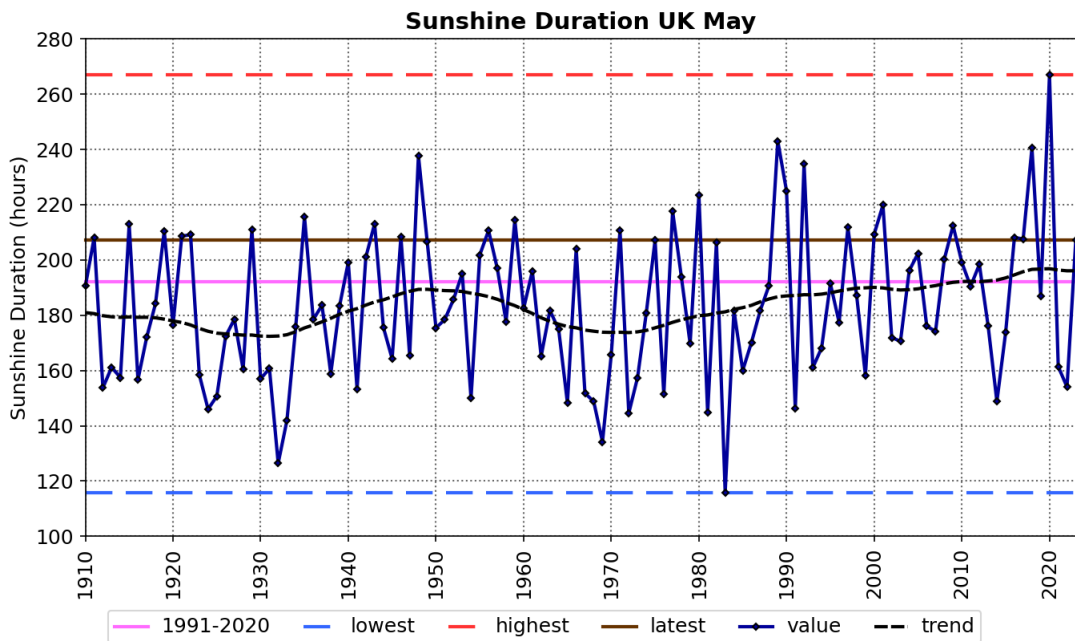
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Period	1961-1990	1991-2020	2014-2023	2023
Meantemp (°C)	9.8	10.7	11.0	11.6



Period	1961-1990	1991-2020	2014-2023	2023
Rainfall (mm)	70.4	71.0	71.0	39.1



Period	1961-1990	1991-2020	2014-2023	2023
Sunshine (hours)	178.2	192.2	195.5	207.2

Daily time-series

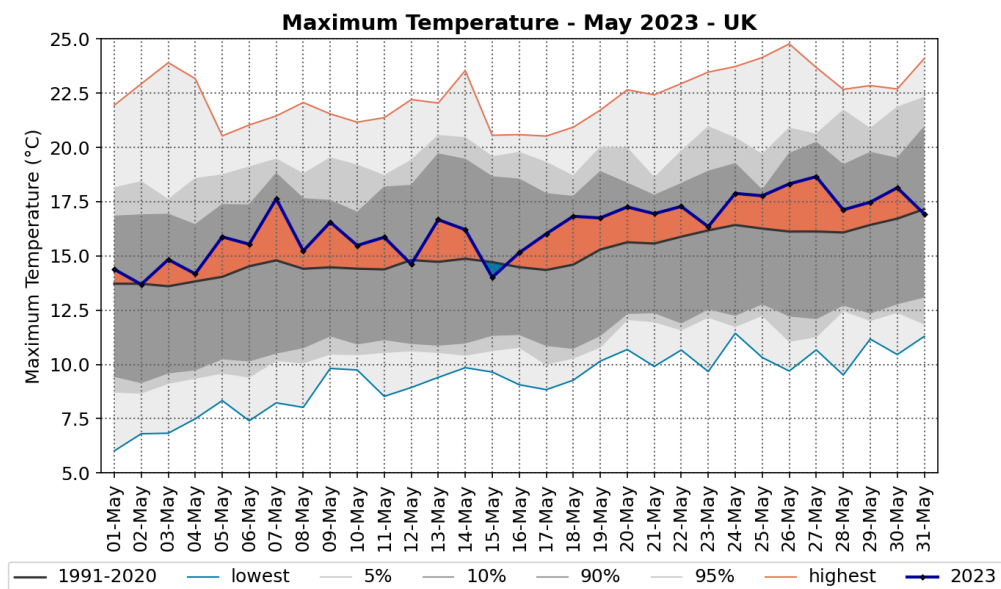
These charts show time-series of UK area-average daily maximum and daily minimum temperature and daily rainfall for each day of May 2023. The areas shaded in grey show the highest and lowest values in the daily temperature series (from 1960) and daily rainfall series (from 1891) together with percentiles and the 1991-2020 long term averages for each day. The rainfall accumulation chart shows the daily rainfall series as an accumulation through the month.

Daily maximum and daily minimum temperature



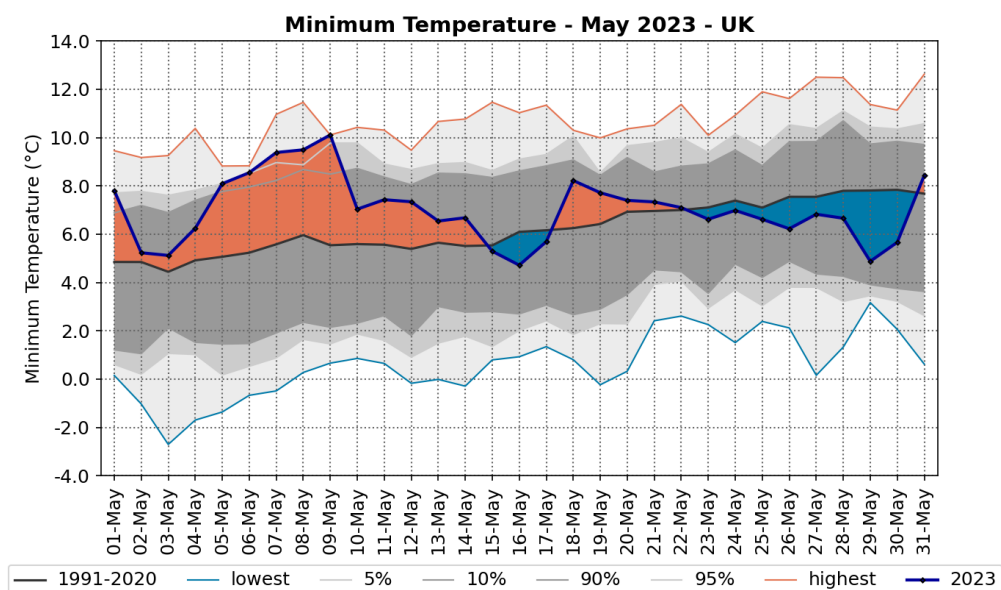
Source: HadUK-Grid 01/06/2023 16:10

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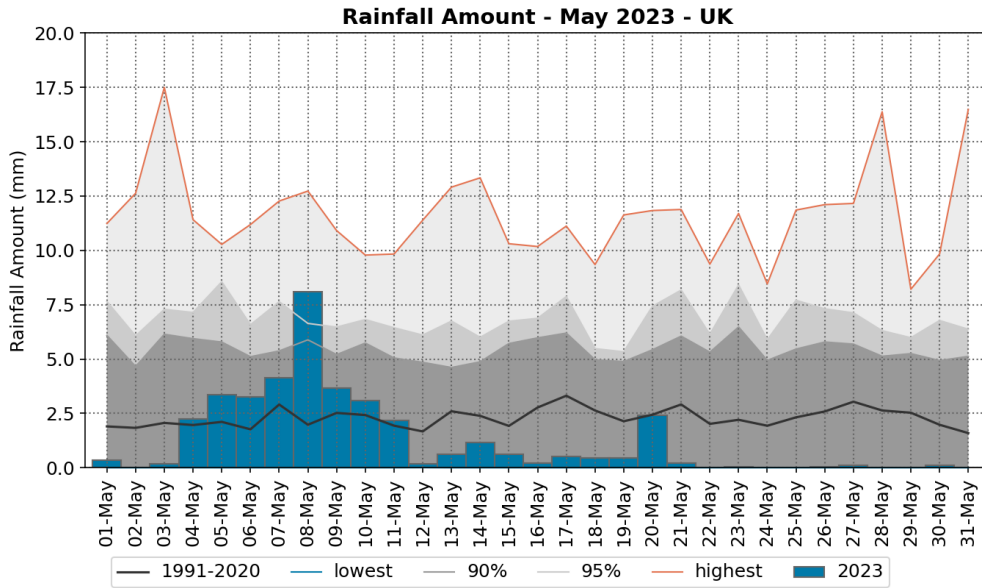


Daily rainfall and rainfall accumulation

Met Office

Source: HadUK-Grid 01/06/2023 16:10

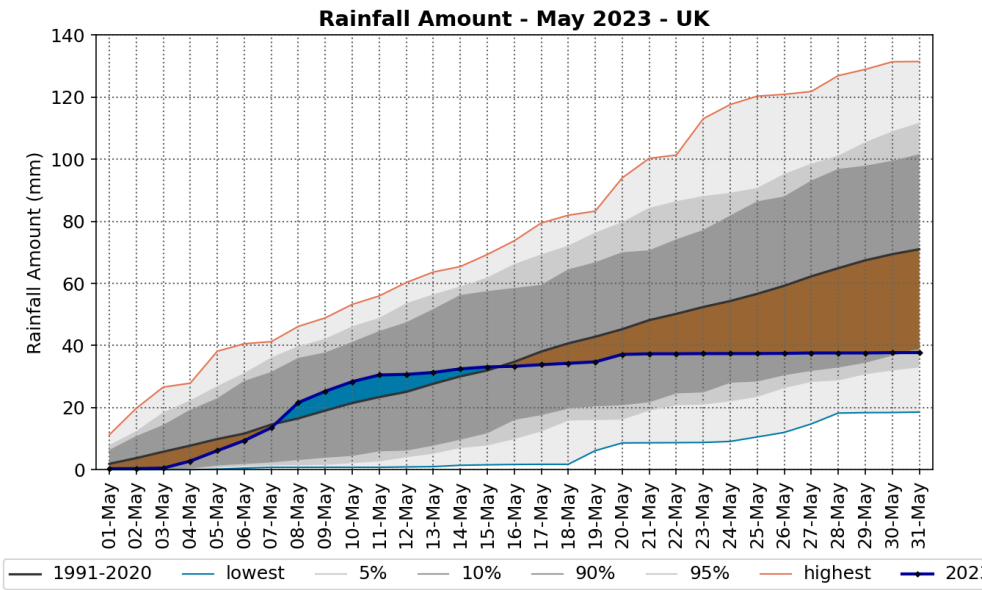
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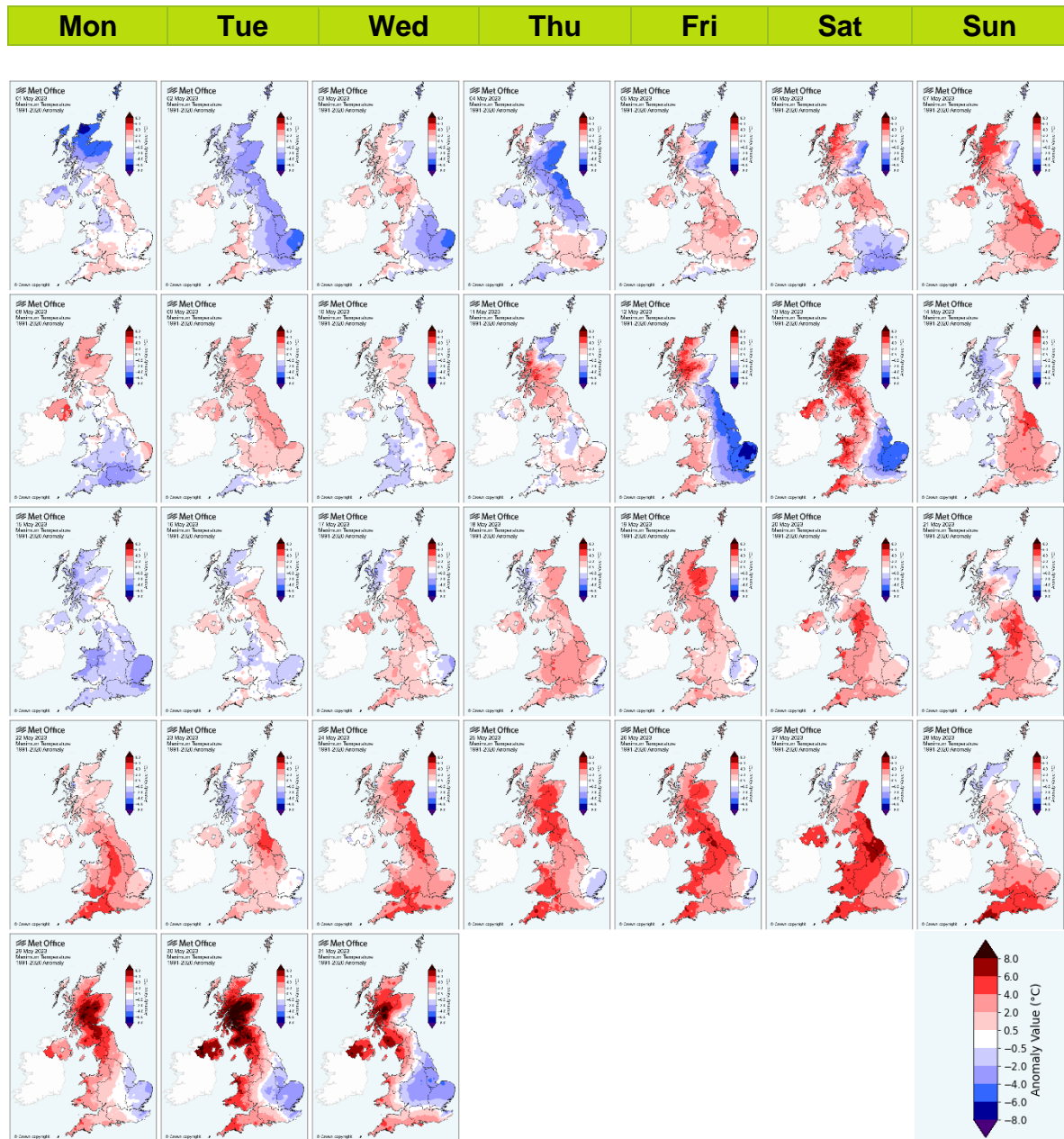
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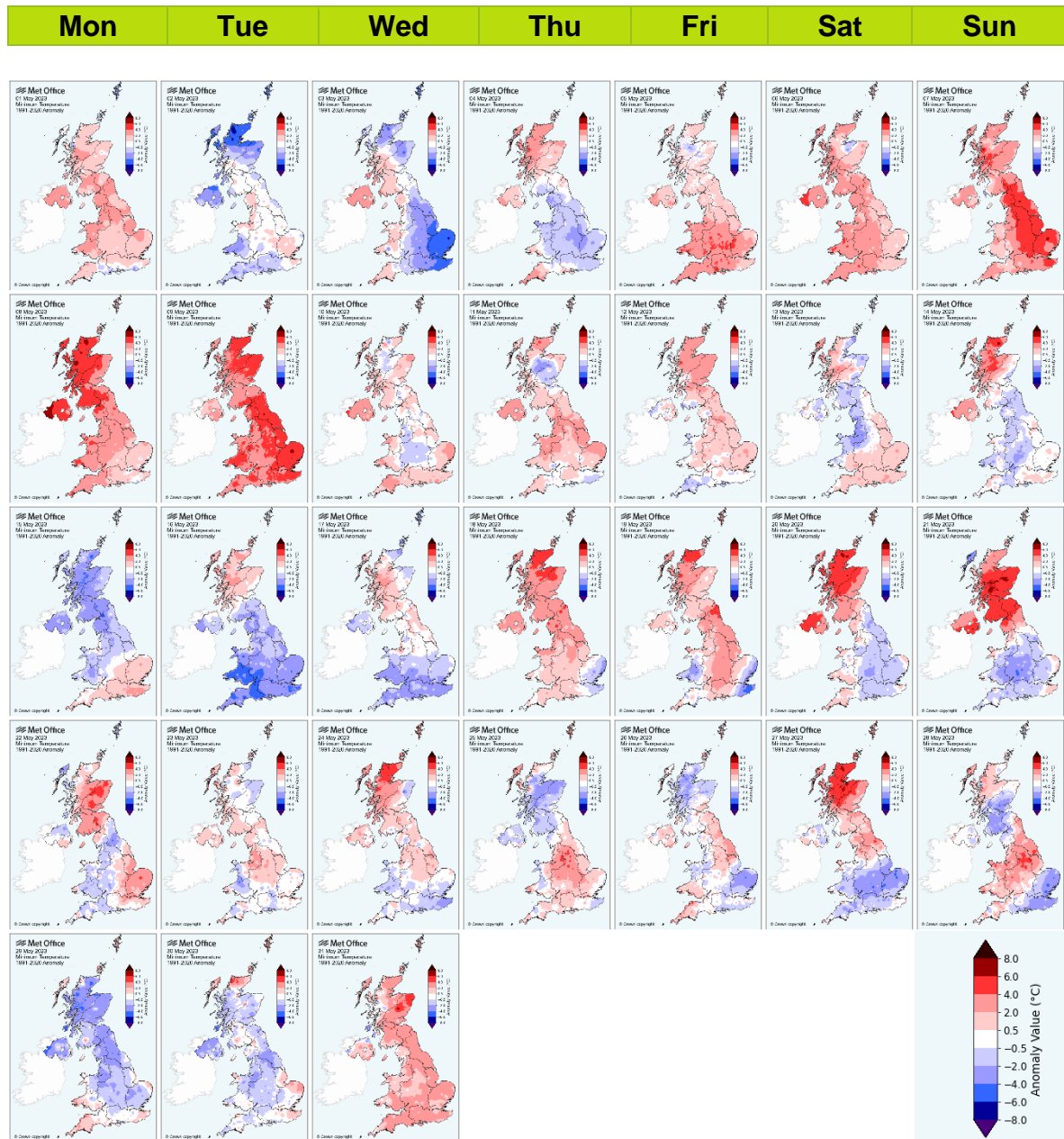
Daily maximum temperature maps - calendar view

These maps show daily maximum temperatures for each day of May 2023 as anomalies relative to the May 1991-2020 long term average. The daily maximum temperature is the maximum from 0900UTC on the day in question to 0900UTC the following day. Normally, the maximum occurs in the early afternoon.



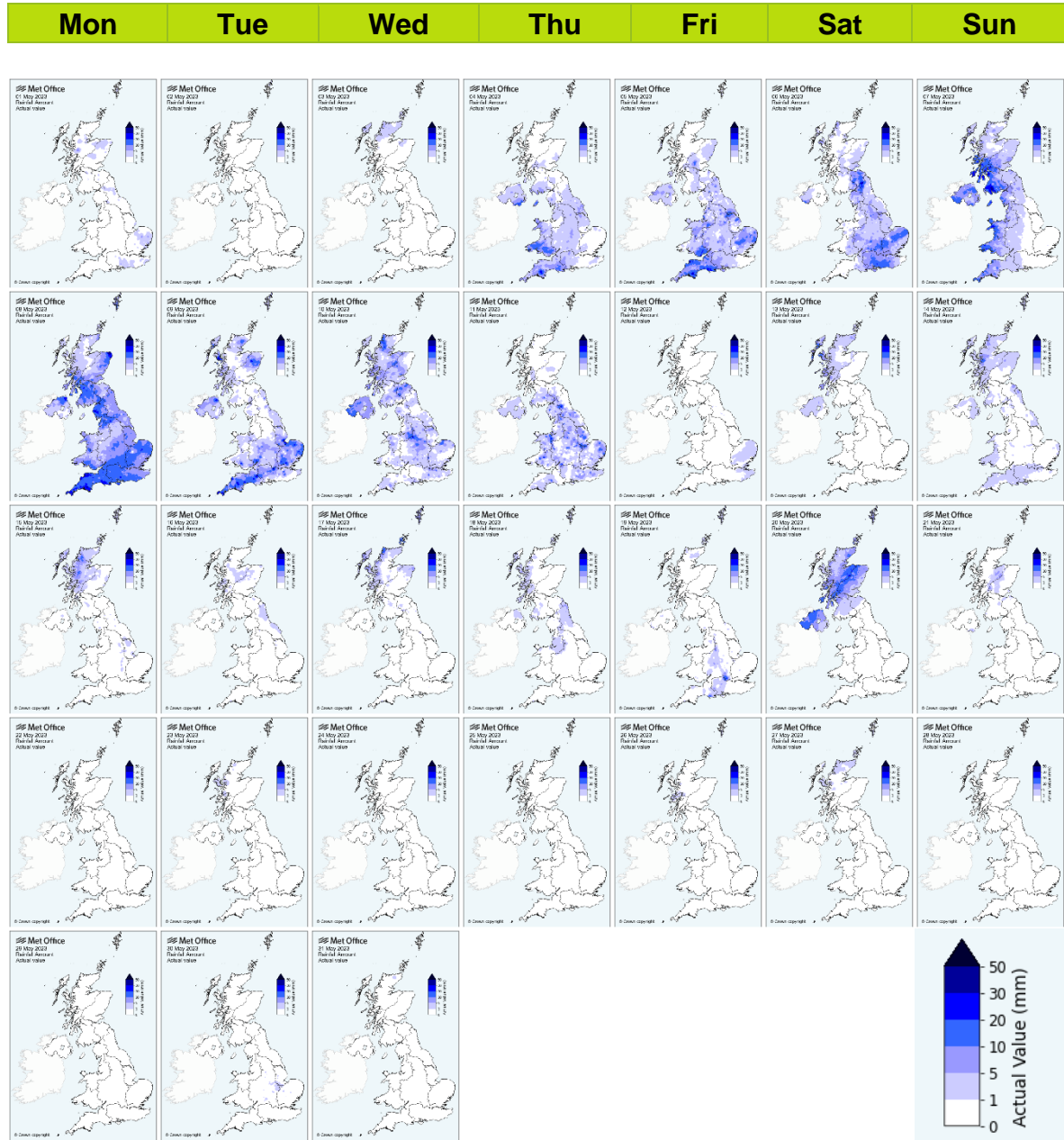
Daily minimum temperature maps - calendar view

These maps show daily minimum temperatures for each day of May 2023 as anomalies relative to the May 1991-2020 long term average. The daily minimum temperature is the minimum from 0900UTC the previous day to 0900UTC on the day in question. Normally, the minimum occurs in the early morning.



Daily rainfall maps - calendar view

These maps show daily rainfall for each day of May 2023 as daily totals. The daily rainfall is the total from 0900UTC on the day in question to 0900UTC the following day.

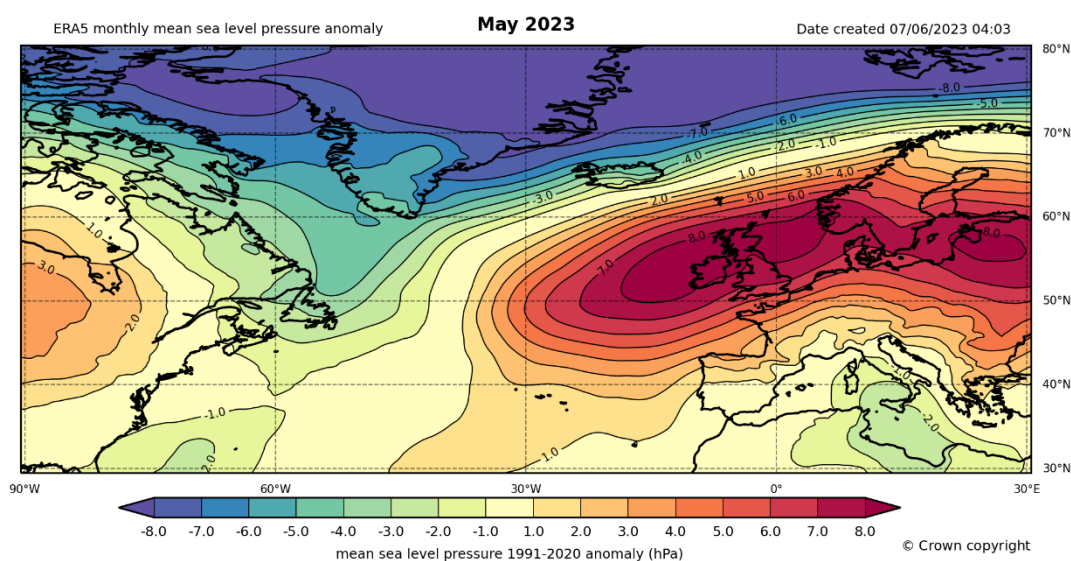
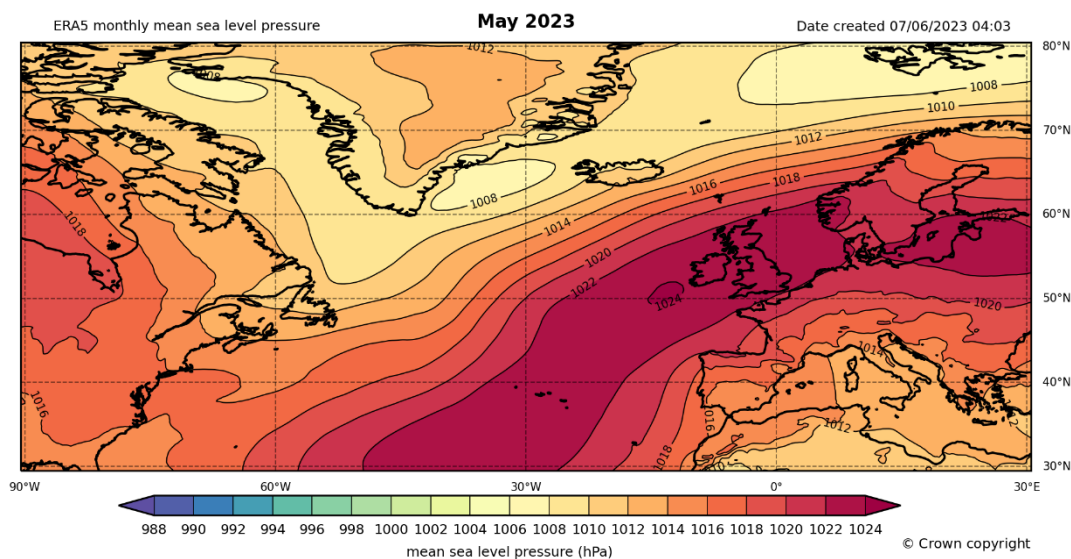


Monthly atmospheric circulation

Mean sea level pressure

These charts show the monthly mean sea level pressure for May 2023 for the UK and north Atlantic, based on the ERA5 reanalysis (Hersbach et al, 2019), both as actual values and as an anomaly relative to the May long term average. These charts provide an indication of the weather characteristics of the month overall i.e. whether the weather type has been generally settled (high pressure) or unsettled (low pressure) during the month.

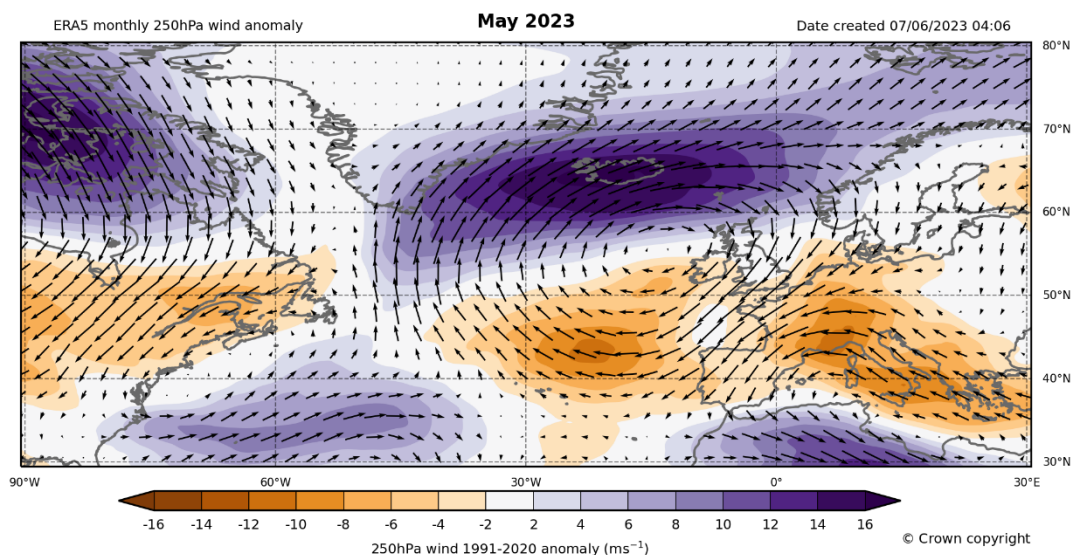
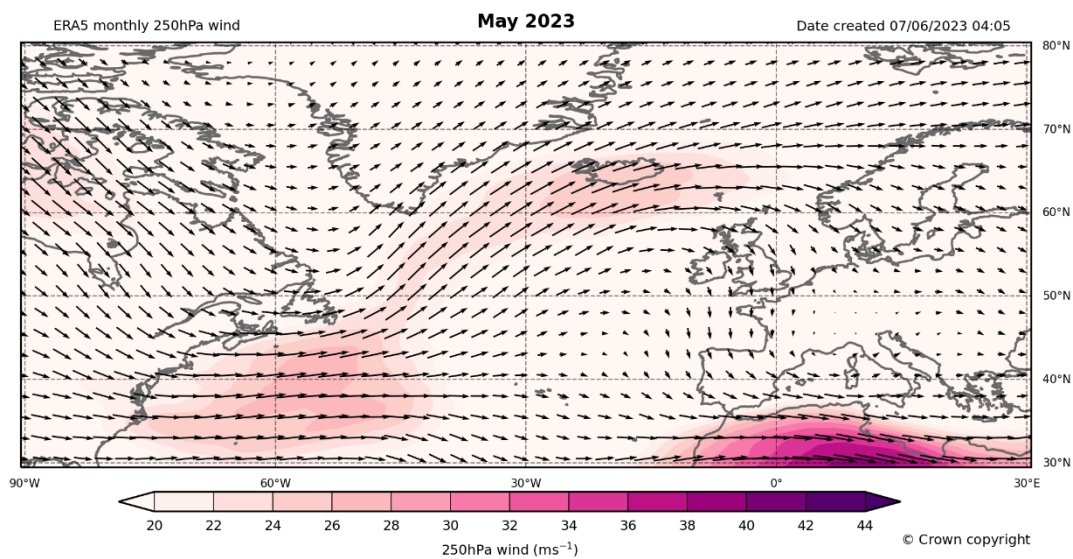
An extended area of high pressure lay across the UK. Pressure was lower than usual to the north of the Arctic Circle, and slightly below normal in the Mediterranean, with anomalous easterly flow over southern England and much of the European continent.



250hPa wind speed and direction

These charts show the monthly 250hPa wind speed and direction for May 2023 for the UK and north Atlantic, based on the ERA5 reanalysis (Hersbach et al, 2019), both as actual values and as an anomaly relative to the May long term average. This provides an indication of the mean strength and position of the jet stream compared to normal. The wind anomaly map shows shaded (scalar) wind speed anomalies with arrows as (vector) wind anomalies.

The jetstream across the north-east Atlantic was displaced to the north of its usual path and was rather weaker than usual, giving a weak northerly flow over the United Kingdom. Anomalous easterly flow was seen over most of Europe.



Weather diary

- **Wet and windy first half of the month, then mostly dry, warm and sunny**

The weather for May was characterized by two distinct weather types. It was wet and at times windy for the first half, and dry, settled and warm for most of the second half.

After a brief dry spell at the beginning of the month, the UK was affected by a series of complex low pressure systems from the Atlantic bringing with them some wet and windy conditions. Warcop Range in Cumbria recorded winds gusting up to 62mph during the 4th. From the 4th to the 15th, all regions saw some significant rainfall, culminating on the 9th with heavy thunderstorms across the south, 43.6mm falling at Harestock in Hampshire. It was rather cold too with all regions seeing frosts as late as the 16th.

High pressure started to build over the UK from the 15th with any frontal incursions being weak and producing nothing more than cloud or patchy rain or drizzle, especially over eastern coastal counties. With the wind predominantly off the North Sea, while central and western parts enjoyed almost unbroken sunshine and temperature into the mid-20s Celsius, the east coast shivered under cloudy, occasionally rainy skies and temperatures restricted to the low teens Celsius.

The very end of the month saw the warmest and sunniest conditions with all parts recording daily sunshine totals in excess of 15 hours, and temperatures well into the 20s Celsius in some areas, Porthmadog in Gwynedd reaching 25.1°C on the 30th.

Notes

The Met Office National Meteorological Library and Archive holds a near-continuous record of monthly weather reports from 1884, and this report forms a continuation of that series. The purpose of each report is to provide an overview of the weather conditions across the UK for that month. The emphasis is mainly based on observations from the surface network of weather stations. Climate series based on data from these stations are used to provide long term context.

This summary was produced on 07/06/2023 12:37. The statistics are a provisional assessment of the observational data available at the time of production. Ongoing data receipt and quality assurance processes may result in subsequent updates to the statistics presented.

If you have any questions or feedback about this product, spot any data errors or omissions, or wish to obtain further data, please contact the Met Office.

For historical monthly weather reports please visit the Library and Archive.

- The land-surface observations presented in this report are from the Met Office official weather station network which includes both automatic weather stations and manual climate stations operated by volunteer observers. Rainfall data are from the official registered rain-gauge network which includes rain-gauges operated by a number of key partners including the Environment Agency, Scottish Environmental Protection Agency and Northern Ireland Water.
- The observations are carefully managed such that they conform to current best-practice observational standards as defined by the World Meteorological Organization (WMO). The observations also pass through a range of quality assurance procedures at the Met Office before application for climate monitoring.
- Daily and monthly maps, monthly statistics and monthly time-series are primarily based on the HadUK-Grid dataset of 1km resolution UK gridded climate data (Hollis et al, 2019). Monthly statistics from the monthly Central England temperature series 1659 (Manley, 1974) and England and Wales precipitation series from 1766 (Wigley et al, 1984) provide long term context.
- The monthly lightning activity map is based on data from the Met Office ATDnet (Arrival Time Difference Network) system. This is an automatic lightning location network comprising around ten lightning outstation sensors located across Europe.
- The monthly maps of mean sea level pressure and 250hPa wind speed and direction are based on the ERA5 reanalysis (Hersbach et al, 2019). ERA5 is the fifth generation ECMWF reanalysis for the global climate and weather for the past 4 to 7

decades. Reanalysis combines model data with observations from across the world into a globally complete and consistent dataset using the laws of physics.

*Hersbach, H., Bell, B., Berrisford, P., Biavati, G., Horányi, A., Muñoz Sabater, J., Nicolas, J., Peubey, C., Radu, R., Rozum, I., Schepers, D., Simmons, A., Soci, C., Dee, D., Thépaut, J-N. (2019): ERA5 monthly averaged data on single levels from 1959 to present. Copernicus Climate Change Service (C3S) Climate Data Store (CDS).
<https://doi.org/10.24381/cds.f17050d7>*

*Hollis, D, McCarthy, MP, Kendon, M, Legg, T, Simpson, I. HadUK-Grid - A new UK dataset of gridded climate observations. Geosci Data J. 2019; 6: 151-159.
<https://doi.org/10.1002/gdj3.78>*

Manley, G. (1974), Central England temperatures: Monthly means 1659 to 1973. Q.J.R. Meteorol. Soc., 100: 389-405. <https://doi.org/10.1002/qj.49710042511>

Wigley, T.M.L., Lough, J.M. and Jones, P.D. (1984), Spatial patterns of precipitation in England and Wales and a revised, homogeneous England and Wales precipitation series. J. Climatol., 4: 1-25. <https://doi.org/10.1002/joc.3370040102>

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